

OIL ANALYSIS REPORT

Sample Rating Trend





Component Diesel Engine

Fluid

DIESEL ENGINE OIL SAE 15W40 (16 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

Wear

Metal levels are typical for a new component breaking in.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| | | May2018 | Jan2019 Oct2019 | Nov2020 Jul2021 Dec2023 | Feb2024 | |
|---|--|---|---|---|--|---|
| SAMPLE INFORM | ATION | method | limit/base | current | history1 | history2 |
| Sample Number | | Client Info | | WC0871017 | WC0871024 | WC06027471 |
| Sample Date | | Client Info | | 22 Feb 2024 | 07 Dec 2023 | 06 Dec 2023 |
| Machine Age | mls | Client Info | | 600 | 16165 | 0 |
| Oil Age | mls | Client Info | | 600 | 450 | 0 |
| Oil Changed | | Client Info | | Changed | Changed | N/A |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |
| CONTAMINATIO | N | method | limit/base | current | history1 | history2 |
| Fuel | | WC Method | >5 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| WEAR METALS | | method | limit/base | current | history1 | history2 |
| Iron | ppm | ASTM D5185m | >100 | 11 | 2 | 4 |
| Chromium | ppm | ASTM D5185m | >20 | <1 | 0 | 0 |
| Nickel | ppm | ASTM D5185m | >4 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185m | >3 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | <1 | <1 | 1 |
| Lead | ppm | ASTM D5185m | >40 | 0 | 0 | 0 |
| Copper | ppm | ASTM D5185m | >330 | <1 | 0 | <1 |
| Tin | ppm | ASTM D5185m | >15 | <1 | <1 | 0 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| ADDITIVES | | method | limit/base | current | history1 | history2 |
| Boron | ppm | ASTM D5185m | 250 | 9 | 14 | 1 |
| Barium | ppm | ASTM D5185m | 10 | 0 | 0 | 0 |
| | ppiii | | | | 0 | |
| Molybdenum | ppm | ASTM D5185m | 100 | 56 | 54 | 56 |
| Molybdenum Manganese | | | 100 | 56 <1 | | 56 <1 |
| | ppm | ASTM D5185m | 100 450 | | 54 | |
| Manganese | ppm ppm | ASTM D5185m ASTM D5185m | | <1 | 54 0 | <1 |
| Manganese Magnesium | ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m | 450 | <1 817 | 54 0 766 | <1 940 |
| Manganese Magnesium Calcium | ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 450 3000 | <1 817 1088 | 54 0 766 1058 | <1 940 1092 |
| Manganese Magnesium Calcium Phosphorus | ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 450 3000 1150 | <1 817 1088 936 | 54 0 766 1058 924 | <1 940 1092 1039 |
| Manganese Magnesium Calcium Phosphorus Zinc | ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 450 3000 1150 1350 | <1 817 1088 936 1078 | 54 0 766 1058 924 1039 | <1 940 1092 1039 1242 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur | ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 450 3000 1150 1350 4250 | <1 817 1088 936 1078 2838 | 54 0 766 1058 924 1039 2859 | <1 940 1092 1039 1242 3064 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS | ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 450 3000 1150 1350 4250 limit/base | <1 817 1088 936 1078 2838 current | 54 0 766 1058 924 1039 2859 history1 | <1 940 1092 1039 1242 3064 history2 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon | ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m | 450 3000 1150 1350 4250 limit/base >25 | <1 817 1088 936 1078 2838 current 3 | 54 0 766 1058 924 1039 2859 history1 3 | <1 940 1092 1039 1242 3064 history2 4 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium | ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m | 450 3000 1150 1350 4250 limit/base >25 >158 | <1 817 1088 936 1078 2838 current 3 2 | 54 0 766 1058 924 1039 2859 history1 3 1 | <1 940 1092 1039 1242 3064 history2 4 3 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium | ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 450 3000 1150 1350 4250 limit/base >25 >158 >20 | <1 817 1088 936 1078 2838 current 3 2 0 | 54 0 766 1058 924 1039 2859 history1 3 1 0 | <1 940 1092 1039 1242 3064 <u>history2</u> 4 3 <1 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED | ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | 450 3000 1150 1350 4250 limit/base >25 >158 >20 limit/base >3 | <1 817 1088 936 1078 2838 current 3 2 0 current | 54 0 766 1058 924 1039 2859 history1 3 1 0 history1 | <1 940 1092 1039 1242 3064 history2 4 3 <1 history2 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % | ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | 450 3000 1150 1350 4250 limit/base >25 >158 >20 limit/base >3 | <1 817 1088 936 1078 2838 current 3 2 0 current 0.5 | 54 0 766 1058 924 1039 2859 history1 3 1 0 history1 0.6 | <1 940 1092 1039 1242 3064 history2 4 3 <1 history2 0.4 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m *ASTM D7844 | 450 3000 1150 1350 4250 limit/base >25 >158 >20 limit/base >3 >20 | <1 817 1088 936 1078 2838 current 3 2 0 current 0.5 7.9 | 54 0 766 1058 924 1039 2859 history1 3 1 0 history1 0.6 12.9 | <1 940 1092 1039 1242 3064 <u>history2</u> 4 3 <1 <u>history2</u> 0.4 8.4 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D51854 *ASTM D7844 *ASTM D7844 | 450 3000 1150 1350 4250 limit/base >25 >158 >20 limit/base >3 >20 >3 >20 | <1 817 1088 936 1078 2838 current 3 2 0 current 0.5 7.9 19.6 | 54 0 766 1058 924 1039 2859 history1 3 1 0 <u>history1</u> 0.6 12.9 23.1 | <1 940 1092 1039 1242 3064 history2 4 3 <1 history2 0.4 8.4 19.6 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7415 | 450 3000 1150 1350 4250 imit/base >25 >158 >20 imit/base >3 >20 >30 >30 | <1 817 1088 936 1078 2838 current 3 2 0 current 0.5 7.9 19.6 current | 54 0 766 1058 924 1039 2859 history1 3 1 0 <u>history1</u> 0.6 12.9 23.1 history1 | <1 940 1092 1039 1242 3064 history2 4 3 <1 history2 0.4 8.4 19.6 history2 |



cSt (100°C)

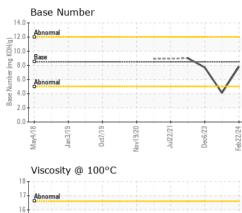
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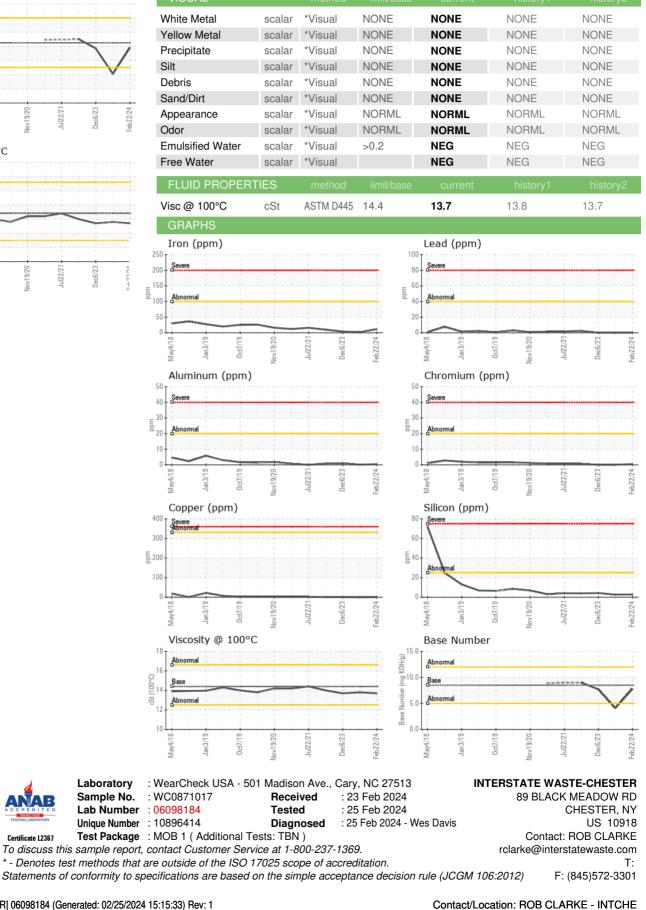
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